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1. In 1953, the Institute for Technical Standardization at the Dresden Institute of Technology worked on various research orders assigned by the Dresden Research Department of the State Secretariat for University Affairs.

2. In May 1953, research was continued in the field of rapid cutting to determine various factors such as the depth of cut, the feed and the angle of adjustment of cutting tools turning at various cutting speeds. Diagrams of the figures obtained were prepared in a series of experiments conducted with type 70 steel (C 60.61). Cutting tests with cast steel (B - 45 kg/sq mm) were carried out at cutting speeds V - 100, 200 and 300 rpm and at cutting depths of 2 mm and 3 mm respectively. An additional series of tests with C 35.61 type steel was initiated to determine the effect of the nose angle (angle of point) and the angle of the side rack of the cutting tool (Nebenschneidenwinkel). Machine tools used for these experiments included a REFA type, three component cutting power meter, and E 6 and DLZ 500 type lathes. The experiments were completed and evaluation of the figures obtained started in early July 1953. A new HVD 500 high output experimental lathe was received in February 1953. In May, the machine tool was put into operation for adjusting purposes and was subjected to several improvements including a clamping device for lathe tools designed to fasten the tool to the supporting plate. A further series of experiments was being prepared. In mid-July 1953, the HVD 500 had not yet been accepted.

3. In July 1953, the OF 51 type experimental surface milling machine (Oberfraese) was modified for cutting tests at maximum speeds, with the spindle engine at the motor hood converted to make possible the measuring of spindle revolutions and cutting power.

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4. In May and June, six new types of porcelain cutting plates (cutting surfaces) received from the IKA Porzellanwerk Neuhaus, VEB, at Neuhaus-Schniersehnitz were tested to determine cutting qualifications and optimum cutting angles and speeds as well as to determine additional characteristics in edge life tests. The experiments which continued included tests with silumin, bronze, grey cast iron, cast steel (B-45 kg/sq mm) and type 50 steel. By July 1953, it had not been possible to obtain for edge life tests the light metal alloys generally used in the industry. Successful experiments with pressed layers of material were continued. Since the three component cutting power meter was not sensitive enough for small cutting powers and showed serious errors when measuring the cutting power of ceramic cutters, especially on light metal, it was planned to use a single component cutting power meter developed by Diplom Ingenieur Berzhold (fnu) which was more sensitive. A holding device for shorter cutting plates with a back rake (top back slope) of 5 degrees and a clearance angle of 45 degrees and several special cutting plate holders for the machining of pressed layers of material with automatic milling machines were constructed for this purpose. Protective rings were fixed around the milling cutters at the test stand for percussion millers (Schlagfraesen) and clamping holders were developed for milling cutters with various top back slopes and clearance angles. Clamping holders were also attached to the REFA three component measuring steel holder to test the cutting power of ceramic cutters. Comparison of the cutting power of ceramic cutting surfaces and of hard metal cutters then made it possible to determine the reason for the short edge life of ceramic cutting plates. In early July, additional types of ceramic cutting plates were received from the IKA Porzellanwerk Neuhaus VEB, for cutting tests with silumin, cast steel, 50.11 and C 60.61 type steels, type 26 grey cast iron and type 5 bronze. Starting in April 1953, ceramic cutting tools from the WMW Roller Bearing Plant, VEB, were used to produce ball bearing retainers of pressed wood. Im mid-July, the institute was engaged in preliminary experiments with various types of porcelain cutting plates on hard tissue and hard paper for industrial tests planned by the Plant for Switching Devices, VEB, at Muskau.

5. In May, the Institute for Organic Chemistry at the Dresden Institute of Technology received a Raman type multiple camera for nine high pressure burners to be used with the Raman spectroscope. The experiments with the Raman set were intended for the development of a multiple camera for medium pressure burners. Sketches for the adjusting set and the camera casing were completed. Work on the cooling system continued. In June, Diplom Chem. Steger (fnu) almost completed the development of a new cooling jacket for medium pressure burners of a Raman spectroscope. During the same period, another chemist, Kriegsmann (fnu), worked on experiments with cone-shaped cuvettes to further develop the Raman method of analysing solids. He determined the optimum shape of cuvettes during the experiments.

25X1A [redacted] Comment. The Raman spectroscope is used for optical analysis of organic substances.

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